Tanja Bosak was born in Croatia and graduated from the Zagreb University with a degree in Geophysics. After a summer of research at JPL, she moved to the California Institute of Technology in Pasadena, where she studied signatures of microbial processes in ancient sedimentary rocks and earned a Ph.D. in Geobiology. She spent two years at Harvard as a Microbial Initiative Postdoctoral Fellow, joined the Department of Earth, Atmospheric and Planetary Sciences at MIT in 2007 and is now a Professor of Geobiology and the group leader of the Program in Geology, Geochemistry and Geobiology.

Tanja's work integrates microbiology, sedimentology and stable isotope geochemistry into experimental geobiology to ask how microbial processes leave chemical, mineral and morphological signals in sedimentary rocks. Her lab uses this approach to explore modern biogeochemical and sedimentological processes, interpret the co-evolution of life and the environment during the first 80% of Earth history and look for signs of past life on Mars. For this work, and her work with graduate students and undergraduates, Bosak received the Subaru Outstanding Woman in Science award by the Geological Society of America (2007), the Macelwane Medal from the American Geophysical Union (2011), the Edgerton Award for young faculty at MIT (2012), the Undergraduate Research Opportunities for Undergraduates Mentor of the Year award by MIT (2012) and the Award for Outstanding Contributions and Dedication to Geobiology and Geomicrobiology from The Geobiology and Geomicrobiology Division of The Geological Society of America. Bosak is a fellow of the American Geophysical Union (2011), the American Academy of Microbiology (2021), and a subject editor for Geobiology, Frontiers of Microbiology and Geochemical Perspectives Letters.